



COMPLEMENTARY PAIR ENHANCEMENT MODE MOSFET

Product Summary

Device	V _{(BR)DSS}	R _{DS(ON)} max	Package	$I_D \max$ $T_A = +25$ °C
0.4	00) ($55m\Omega$ @ V_{GS} = $10V$	TSOT26	3.8A
Q1 30V	300	$65m\Omega @ V_{GS} = 4.5V$	TSOT26	3.6A
00	001/	110mΩ @ V _{GS} = -10V	TSOT26	-2.5A
Q2	-30V	142mΩ @ V _{GS} = -4.5V	TSOT26	-2.1A

Features

- Complementary MOSFET
- Low On-Resistance
- Low Input Capacitance
- · Fast Switching Speed
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Description

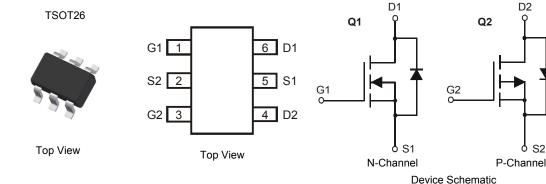
This MOSFET has been designed to minimize the on-state resistance $(R_{DS(ON)})$ and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

- Backlighting
- Power Management Functions
- DC-DC Converters

Mechanical Data

- Case: TSOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See diagram
- Terminals: Finish NiPdAu over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (e4)
- Weight: 0.008 grams (approximate)



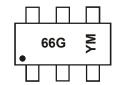
Ordering Information (Note 4)

Part Number	Case	Packaging
DMG6601LVT-7	TSOT26	3K/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at http://www.diodes.com/products/packages.html

Marking Information



66G = Product Type Marking Code YM = Date Code Marking Y = Year (ex: X = 2010) M = Month (ex: 9 = September)

Date Code Key

Year	201	1	2012		2013	20	14	2015		2016	2	2017
Code	Υ		Z		Α	E	3	С		D		Е
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



Maximum Ratings - Q1 and Q2 (@TA = +25°C, unless otherwise specified.)

Characteristic		Symbol	Q1	Q2	Units	
Drain-Source Voltage	V_{DSS}	30	-30	V		
Gate-Source Voltage	V _{GSS}	±12	±12	V		
Continuous Drain Current (Note 6) $V_{GS} = 10V$ $Steady $			I _D	3.8 3.0	-2.5 -2	Α
			l _D	4.5 3.4	-3 -2.3	Α
Maximum Body Diode Forward Current (Note 6)	Is	1.5	-1.5	Α		
Pulsed Drain Current (Note 6)	I _{DM}	20	-15	Α		

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units	
Total Power Dissipation (Note 5)	$T_A = +25^{\circ}C$	D	0.85	W
Total Fower Dissipation (Note 5)	$T_A = +70^{\circ}C$	P _D	0.54	VV
Thermal Resistance, Junction to Ambient (Note 5)	Steady state	J	147	°C/W
Thermal Resistance, Junction to Ambient (Note 3)	t<10s		103	C/VV
Total Power Dissipation (Note 6)	$T_A = +25^{\circ}C$		1.3	W
Total Fower Dissipation (Note o)	$T_A = +70^{\circ}C$	P _D	0.83	V V
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	р.:	96	
Thermal Resistance, Junction to Ambient (Note 6)	t<10s	$-$ R _{θJA}	67	°C/W
Thermal Resistance, Junction to Case (Note 6)	$R_{ heta JC}$	36		
Operating and Storage Temperature Range	Operating and Storage Temperature Range			°C

Electrical Characteristics - Q1 (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition		
OFF CHARACTERISTICS (Note 7)								
Drain-Source Breakdown Voltage	BV _{DSS}	30	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$		
Zero Gate Voltage Drain Current @T」 = +25°C	I _{DSS}	-	-	1	μΑ	$V_{DS} = 30V, V_{GS} = 0V$		
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	$V_{GS} = \pm 12V, V_{DS} = 0V$		
ON CHARACTERISTICS (Note 7)								
Gate Threshold Voltage	V _{GS(th)}	0.5	1	1.5	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$		
		-	34	55		$V_{GS} = 10V, I_D = 3.4A$		
Static Drain-Source On-Resistance	R _{DS (ON)}	-	38	65	mΩ	V _{GS} = 4.5V, I _D = 3A		
			49	85		V _{GS} = 2.5V, I _D = 2A		
Forward Transfer Admittance	Y _{fs}	-	6	-	S	$V_{DS} = 5V, I_D = 3.4A$		
Diode Forward Voltage (Note 7)	V _{SD}	-	0.75	1.0	V	V _{GS} = 0V, I _S = 1A		
DYNAMIC CHARACTERISTICS (Note 8)								
Input Capacitance	C _{iss}	1	422	-	pF	1/ 451/1/ 01/		
Output Capacitance	Coss	-	41	-	pF	V _{DS} = 15V, V _{GS} = 0V, -f = 1.0MHz		
Reverse Transfer Capacitance	C _{rss}	-	39	-	pF	-1 - 1.0WHZ		
Gate resistance	R_g		1.26	-	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$		
Total Gate Charge (V _{GS} = 4.5V)	Q_{g}	-	5.4	-	nC			
Total Gate Charge (V _{GS} = 10V)	Qg		12.3	-	nC	V _{GS} = 10V, V _{DS} = 15V,		
Gate-Source Charge	Q _{gs}	-	8.0	-	nC	I _D = 3.1A		
Gate-Drain Charge	Q_{gd}	-	1.2	-	nC	1		
Turn-On Delay Time	t _{D(on)}	-	1.6	-	ns			
Turn-On Rise Time	t _r	-	7.4	-	ns	V _{DS} = 15V, V _{GS} = 10V,		
Turn-Off Delay Time	t _{D(off)}	-	31.2	-	ns	$R_L = 4.7\Omega$, $R_G = 3\Omega$,		
Turn-Off Fall Time	t _f	-	15.6	-	ns			

^{5.} Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout 6. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal vias to bottom layer 1inch square copper plate

^{7.} Short duration pulse test used to minimize self-heating effect.

^{8.} Guaranteed by design. Not subject to product testing.



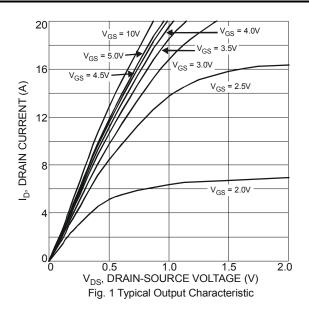
Electrical Characteristics - Q2 (@T_A = +25°C, unless otherwise specified.)

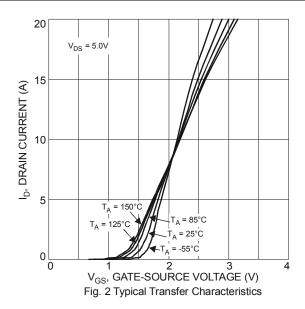
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition		
OFF CHARACTERISTICS (Note 7)								
Drain-Source Breakdown Voltage	BV _{DSS}	-30	-	-	V	$V_{GS} = 0V, I_D = -250\mu A$		
Zero Gate Voltage Drain Current @T _J = +25°C	I _{DSS}	1	-	-1	μΑ	$V_{DS} = -30V, V_{GS} = 0V$		
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	$V_{GS} = \pm 12V, V_{DS} = 0V$		
ON CHARACTERISTICS (Note 7)								
Gate Threshold Voltage	V _{GS(th)}	-0.4	-0.8	-1.2	V	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$		
		-	70	110		$V_{GS} = -10V, I_D = -2.3A$		
Static Drain-Source On-Resistance	R _{DS (ON)}	-	81	142	mΩ	$V_{GS} = -4.5V, I_D = -2A$		
	, ,		105	190		$V_{GS} = -2.5V, I_D = -1A$		
Forward Transfer Admittance	Y _{fs}	-	5.3	-	S	$V_{DS} = -5V$, $I_{D} = -2.3A$		
Diode Forward Voltage (Note 7)	V _{SD}	-	-0.8	-1.0	V	$V_{GS} = 0V, I_{S} = -1A$		
DYNAMIC CHARACTERISTICS (Note 8)						_		
Input Capacitance	C _{iss}	-	541	-	pF	\\ - 45\\ \\ - 0\\		
Output Capacitance	Coss	-	46	-	pF	$V_{DS} = -15V, V_{GS} = 0V,$ - f = 1.0MHz		
Reverse Transfer Capacitance	C _{rss}	-	43	-	pF	1 - 1.000112		
Gate resistance	Rg	-	16.9	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz		
Total Gate Charge (V _{GS} = -4.5V)	Q_{g}	-	6.5	-	nC			
Total Gate Charge (V _{GS} = -10V)	Q_{g}		13.8	-	nC	$V_{GS} = -10V, V_{DS} = -15V,$		
Gate-Source Charge	Qgs	-	1.0	-	nC	$I_D = -2.3A$		
Gate-Drain Charge	Q_{gd}	-	1.6	-	nC			
Turn-On Delay Time	t _{D(on)}	-	1.7	-	ns			
Turn-On Rise Time	t _r	-	4.6	-	ns	V _{DS} = -15V, V _{GS} = -10V,		
Turn-Off Delay Time	$t_{D(off)}$	-	18.3	-	ns	$R_L = 6\Omega$, $R_G = 3\Omega$,		
Turn-Off Fall Time	t _f	-	2.2	-	ns			

Notes:

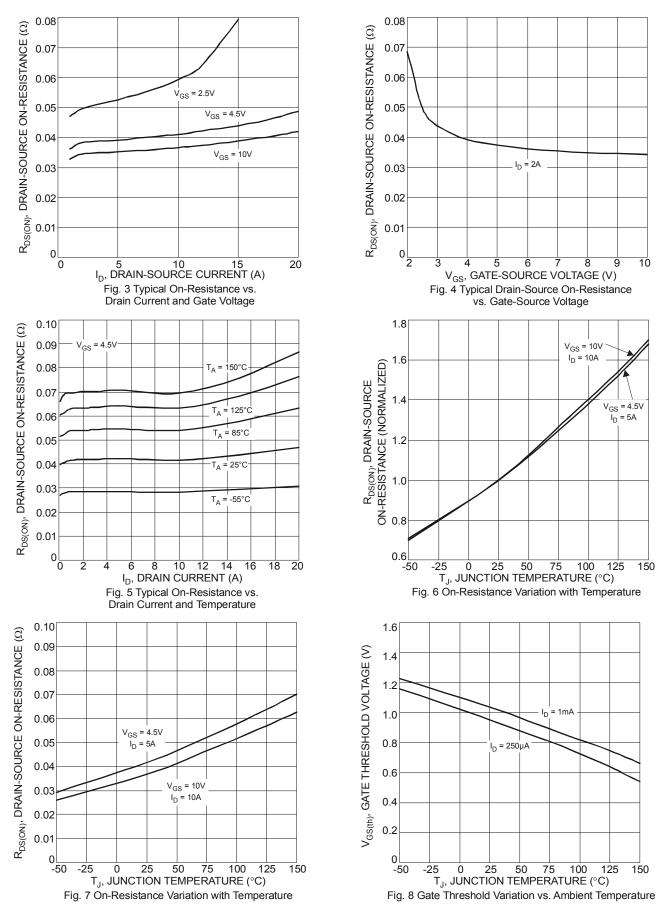
- 7. Short duration pulse test used to minimize self-heating effect. 8. Guaranteed by design. Not subject to product testing.

N Channel - Q1

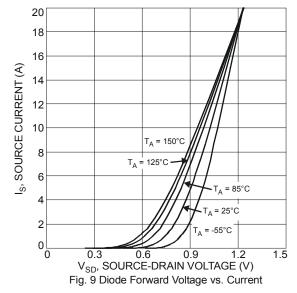


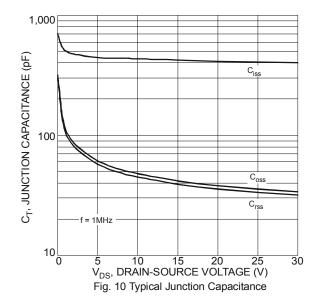


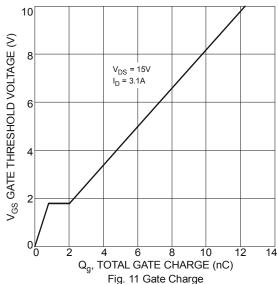


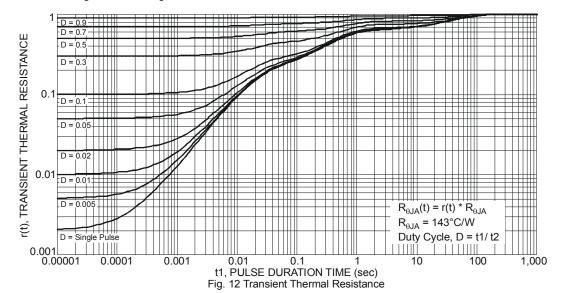






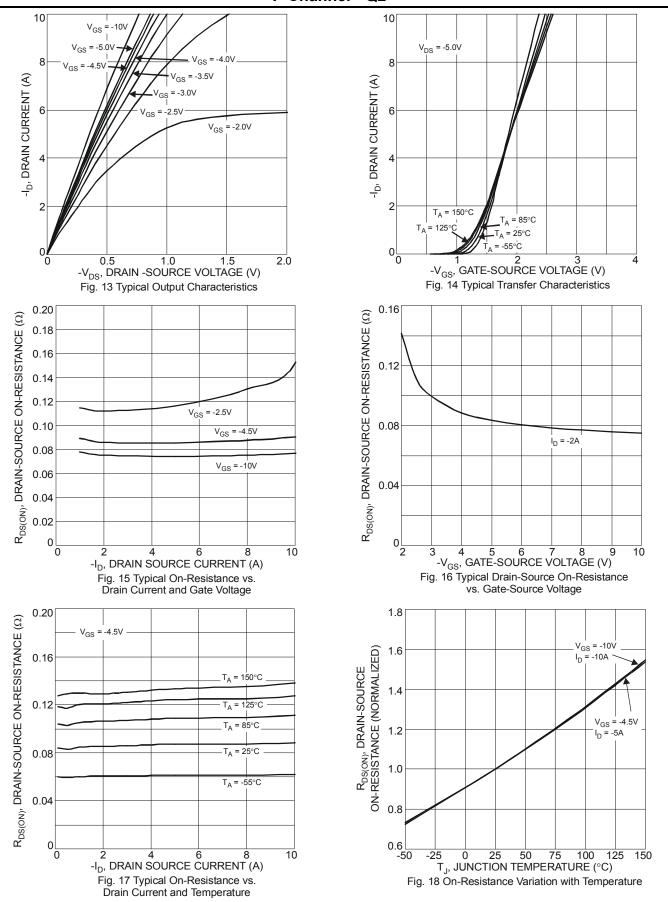




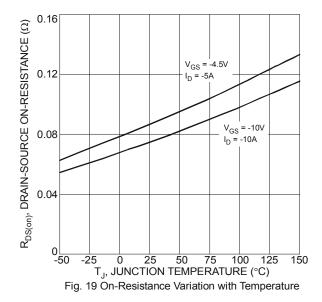


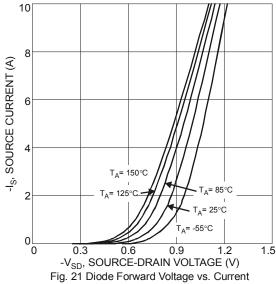


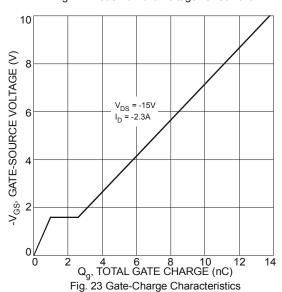
P Channel - Q2











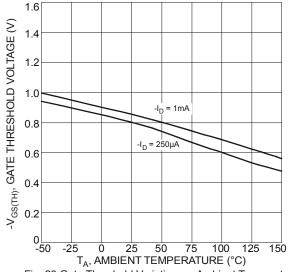
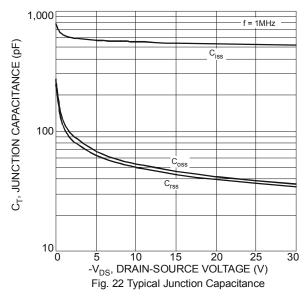
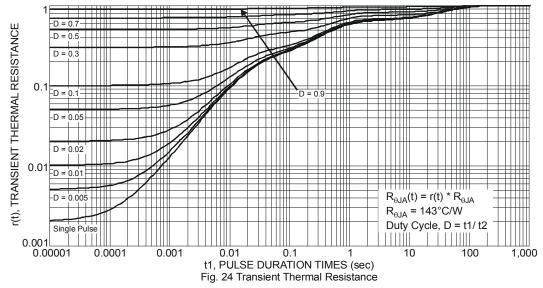


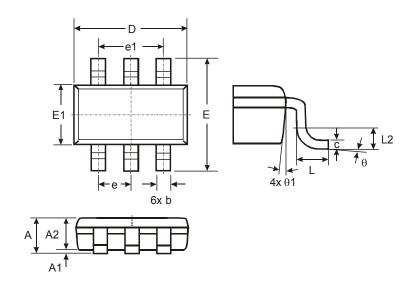
Fig. 20 Gate Threshold Variation vs. Ambient Temperature





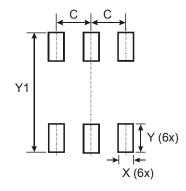


Package Outline Dimensions



	TSOT26							
Dim	Min	Max	Тур					
Α	-	1.00	_					
A1	0.01	0.10	_					
A2	0.84	0.90	_					
D	1	_	2.90					
Е	-	_	2.80					
E1	_	_	1.60					
b	0.30	0.45	_					
С	0.12	0.20	-					
е	-	_	0.95					
e1	1	_	1.90					
L	0.30	0.50						
L2	_	_	0.25					
θ	0°	8°	4°					
θ1	4°	12°	_					
All D	imensi	ons in	mm					

Suggested Pad Layout



Dimensions	Value (in mm)
С	0.950
X	0.700
Y	1.000
Y1	3.199



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